



REMARKS

ON

Henry J. Morgan
1901

ELECTRO-THERAPEUTICS,

WITH CASES.

BY

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(Read before the Medico-Chirurgical Society of Montreal,
February 8th, 1878.)

(RE-PRINTED FROM THE CANADA MEDICAL RECORD, FEBRUARY, 1878.)

Montreal;

PRINTED BY LOVELL PRINTING AND PUBLISHING CO.

1878.

EXHIBIT

STATE OF NEW YORK

IN SENATE

JANUARY 18, 1891

REPORT

OF THE

COMMISSIONERS

OF THE LAND OFFICE

IN RESPONSE TO A RESOLUTION

ELECTRO-THERAPEUTICS.

MR. PRESIDENT AND GENTLEMEN,—In my paper for this evening, I propose simply to mention the different kinds of electricity; their different modes of application, and their uses as therapeutic agents. Also, to bring before your notice for discussion some of the cases I have had under treatment, hoping it may awaken fresh interest in this very valuable therapeutic agent.

FORMS OF ELECTRICITY USED IN THERAPEUTICS.

1st. *Static or Frictional Electricity*—The electrical machine for producing this form is very simple, its essential parts being three, viz., the rubber, the rubbed body and the prime conductor, the rubber being usually a pair of leather cushions amalgamated with a paste made of zinc and tin turnings rubbed down with mercury and lard, the rubbed body, a large circular plate of glass, mounted on a glass axle, and turned by a handle between the cushions, and the prime conductor, usually an insulated metal cylinder intended to receive the kind of electricity required. This form of electricity is used for medical purposes in three ways, viz., the electric bath, electrization by sparks and the Leyden jar. The electric bath is of two kinds, electro-positive and electro-negative. The former increases the vital forces, the latter decreases them. In the electro-positive bath the electricity is gathered from the glass-plate on to the prime conductor, while the negative electricity is carried away by a chain from the cushions to the floor. The patient being placed on an insulated stool or chair, is connected with the prime conductor. The whole surface of the patient's body is thus charged with positive electricity, while the surrounding air is rendered negative. If the electric bath be given in a dark room a luminous appearance is produced by the escape of

electricity into the air. The electro-negative bath is given in the same way, with this difference: the negative electricity from the cushions is collected, while the positive is liberated and carried to the ground by a chain. The electro-negative is said to have a weakening effect by reducing the natural electricity of the patient, acting like blood letting, the pulse being retarded.

These baths have been found useful in old standing ties, sciaticas, unpleasant flutterings about the heart depending on weak innervation, and tremor of the limbs have been removed, by simply charging a patient as it is called, even when the other forms of electricity have failed.

Electrization by sparks.—The patient is charged in the manner just described as an electric bath. The operator brings his hand near the patient, his hand becomes negatively electric. The negative electricity of the hand combines with the positive electricity of the patient; this produces a flash of light accompanied by a snap, and this is called the electric spark. These sparks may be drawn from the body by metallic conductors, and produce a sharp pricking at the part; if continued the skin becomes reddened, and white wheals are produced. At Guy's Hospital there is a chain or movable wire suspended from the ceiling and connected with the ground, to which is attached a brass ball which slides up and down the wire. This is brought close to the patient, about an inch from the spine; the patient is now charged, and the ball passed up and down in a line with the spine; sparks now pass to the ball and thence to the ground by the wire. In this way a rapid succession of sparks can be obtained. Cavallo has recommended the drawing of the sparks through flannel. If the sparks follow each other rapidly, they may cause slight vibration of the muscles which are close under the skin. This form has been used with success in paralysis, chorea, some kinds of amenorrhœa, and in some spasmodic affections.

The Leyden jar is charged as follows: you hold the jar by its outer coating, and bring the knob which is connected

with the inner coating to the conductor of an electric machine in action. The inner coating becomes charged with positive electricity and the outer coating with negative. If these two coatings become connected, neutralization of the two electricities takes place, and the jar is discharged. For medical purposes it is used as follows:—A conductor communicates with the inner surface of the jar to the part to be electrified, the outer surface is connected to the opposite side, a spark is produced and the neutralization of the opposite electricities takes place through the part of the body between the two conductors. This form is rarely used.

2nd. *The galvanic*, or as it is sometimes called *the constant or continuous current*.—This form is the result of chemical action, or rather decomposition, and is generated in a cell, battery, or pile, where two metals, an electro-negative and an electro-positive, are brought together in an exciting solution. This current produces no shock to the patient, unless broken or interrupted, which may be done either by the rheotome or by an interrupting handle. If weak, the current produces little or no pain; if, however, it be strong, it causes a tingling, burning feeling at the point of contact with the electrodes. If very strong, it becomes unbearable. The characteristics of this form of electricity are comparatively low "intensity," in its action on nerves and muscles, but a large amount of quantity. It produces results on temperature, chemical and thermic, far beyond static and faradic electricity.

3rd. *Faradic Electricity*.—This form of electricity is of very high tension, having almost no chemical action or any direct effect on the temperature. It produces no burning or tingling as with the galvanic. It produces contractions of the muscles, and has a decided effect on the nerves of sensation and motion. It is an induced current, and is of momentary existence, but these momentary currents may be repeated slowly or quickly. It exists only at the moment of making or breaking the galvanic current, or at the moment of making or unmaking a magnetic condition in a

piece of metal. Having given a slight sketch of the various kinds of electricity, I shall now mention some rules on the modes or methods in which this remedy is used, as, without a proper knowledge of its administration, more harm than good may be done.

Rule 1st.—The positive pole is less irritating, we therefore place the negative pole in general faradization at the feet or coccyx, or at the pit of the stomach in central galvanization, the positive being applied to the head, neck, spine and other sensitive parts.

Rule 2nd.—In cases where the sedative effects of electricity are indicated, the positive pole is preferable, being less irritating.

Rule 3rd.—Where the stimulating effects are indicated, use the negative pole as being the more irritating.

Rule 4th.—Dose of electricity, *i. e.*, the strength of the current and length of *séance*, depends greatly on the size and quality of electrodes, the method of application, whether local or general. A short *séance* of general faradization or central galvanization will have a much greater general effect than a long *séance* of local electrization. If local, a short mild application to the head will produce results (whether beneficial or harmful) that would never occur in one ever so prolonged and strong to the extremities.

Now, not having any definite measure, we to a great extent depend on the sensations of the patient; (*i. e.*) if strong currents are borne without uneasiness they are indicated, if only mild ones are easily borne, use mild. A long *séance* with a mild current is much more beneficial than a short one with a strong current. Sudden shocks, especially with a strong current, often do harm. When using the galvanic current do not allow the electrodes to stay too long in one spot, or a tedious ulceration may be the result. The good effects of electricity may be roughly stated as follows:—

1st. Relief of pain.

2nd. Improvement in the pulse.

3rd. Do do temperature.

4th. Improvement in the digestion.

5th. Do do nutrition.

6th. Increase of appetite.

7th. Quieting effect and tendency to sleep.

Gentle perspiration is an evidence of the proper application of electricity, but profuse perspiration shows an excess of irritation, and indicates that harm has been done instead of good.

If the current be too prolonged or too severe the patient is apt to suffer from disagreeable symptoms, (*e. g.*) dizziness heaviness, oppression, headache, soreness, exhaustion, and a sort of undefinable nervousness. Messrs. Beard and Rockwell give a very exhaustive article in their work on the differences between the galvanic and faradic currents and the special advantages of each, from which I condense the following:

The advantages of the galvanic over the faradic are:

1st. "A greater power of overcoming resistance. It therefore affects the brain, spinal cord and sympathetic more powerfully than the faradic; it is usually preferred when it is desired to affect the middle and internal ear, or the retina and muscles of the eye.

2nd. A power of producing muscular contractions in cases where the faradic fails. This is especially noticeable in paralysis, the muscles responding to galvanism when quite unsusceptible to faradism. After treatment by galvanism the muscles often answer to faradism.

3rd. A more potent electrotonic, electrolytic and thermic action. The chemical power of the galvanic current is most markedly seen in galvano-cautery and electrolysis. Its greater catalytic action makes it superior in cases of neuralgia, atrophied muscles, rheumatism, etc.

The advantages of the faradic current over the galvanic are:

1st. By virtue of its frequent interruptions it more easily produces muscular contractions. This advantage is best appreciated in general faradization, the powerful tonic

effects of which are largely due to the passive exercise and consequent oxidation and other important changes of tissue that result from the several thousand muscular contractions that take place during an ordinary sitting.

2nd. It produces greater mechanical effects. These are due to its rapid interruptions, not only on the muscles but also on the contractile fibre cells, thus stimulating the circulation and, with it, the process of waste and repair. In this respect its action is similar to rubbing, pounding, shampooing, etc. These mechanical effects are especially indicated in the treatment of diseases of the abdominal viscera, which are supplied with contractile fibre cells, anæsthesia, and general muscular debility, constipation, etc.

The general differential indications may be thus summed up.

The Galvanic should be used :

1st. To act with special electrotonic and electrolytic power on the brain, spinal cord, sympathetic or any part of the central or peripheral nervous system.

2nd. To produce contractions in paralyzed muscles that fail to respond to the faradic.

3rd. In electro-surgery to produce electrolysis or cauterization.

The Faradic should be used :

1st. To act mildly on the brain, spine, sympathetic, or any part of the central or peripheral nervous system.

2nd. To excite muscular contractions wherever the muscles are not so much diseased as to be unable to respond to it.

3rd. To produce strong mechanical effects.

The majority of cases, however, may be best treated, not by one current exclusively, but by both currents, either in alternation or succession. The differential action of the two currents may be roughly compared with the differential action of bromide of potassium and chloral hydrate—the faradic current being the bromide of potassium, and the

galvanic the chloral hydrate. Bromide of potassium is a safer remedy than chloral hydrate, but there are very many cases where it is powerless, and the chloral acts as a specific, so the faradic is safer than the galvanic, and therefore better adapted for general use, and, for those who use but one current, fulfills a larger requirement; and yet there are many cases where it fails, and the more powerful galvanic current is required. Except in cases where the galvanic current is clearly indicated, it is well to begin with the faradic—just as we use the bromide before resorting to the chloral. A combination of the bromide and chloral is frequently more effective in producing sleep and relieving pain than when either remedy is used alone, similarly a combined or alternate use of the galvanic and faradic currents will accomplish much more than either used exclusively."

Faradic electricity has been proved lately to be very useful in arresting uterine hæmorrhages, as menorrhagia and post partum hæmorrhage. It has been lately much employed during labor for atony of the uterus, and has been successful in producing strong and regular contractions. This is a very great advantage, as it has no deleterious effect on the child, as is often the case where ergot has been employed. It has been strongly recommended as a means of resuscitating asphyxiated new-born infants, and in cases of drowning.

Electricity may be administered locally for purely local complaints. Where, however, a constitutional effect is required, the general faradization (for the faradic current) or the central galvanization (for the galvanic current) introduced and fully described by Messrs. Beard and Rockwell must be employed.

Localized Electrization.

The object of localized electrization is to confine the direct action of the current, so far as possible, to some particular part of the body. This is accomplished by placing electrodes so that the current in passing from one to the other

shall chiefly traverse only that particular part that is to be affected.

There are two general methods of localized electrization—*direct* and *indirect*: Direct where the application is made over the muscle to be excited; indirect where the application is made to the nerves supplying the muscles. In the former, large electrodes are used; in the latter, small pointed ones. The faradic is best for direct; the galvanic, for indirect. In stable applications the electrodes are kept stationary, in labile, one or both electrodes are moved over the surface.

General Faradization.

The object is to bring every portion of the body under the influence of the faradic current, so far as is possible, by external electrization. This is best accomplished by placing one pole (usually the negative) at the feet or the coccyx, while the other is applied over the surface of the body.

Central Galvanization.

The object here is to bring the whole central nervous system, the brain, sympathetic and spinal cord, as well as the pneumogastric and depressor nerves under the influence of the galvanic current. One pole, usually the negative, is placed at the epigastrium, while the other is passed over the forehead and top of the head, by the inner border of the sterno-cleido mastoid muscles, from the mastoid fossa to the sternum, at the nape of the neck and down the entire length of the spine.

I will now say a few words about the electric bath, as introduced and perfected by Dr. Schweig, which combines all the advantages and benefits to be derived from the various methods of applying electricity, and, in addition, gives the patient the benefit of the warm bath. The good results following the use of the electric bath have, in my experience, far surpassed those of any other mode of application. The bath is made in the form of the ordinary zinc

washing baths found in most houses. It is, however, made of wood, slate, marble, or hard rubber; wood is, of course, the cheapest. At the head and foot of the bath carbon plates are let into the wood; these plates are connected by means of a copper wire, which runs along a groove let in the head and foot pieces of the bath to the coping, where it communicates with two binding screws, one at the head and the other at the foot of the bath. When a bath is given, a wire is connected from either pole of the battery to the binding screws. If the conductor from the positive pole is connected with the binding screw at the head board, and the negative with that at the foot, we get a descending current. Where an ascending current is required, the reverse of this must be carried out. If we require to localize the current in special parts of the body from one of the poles, what is termed a surface board is used; this is a piece of board about 14 inches long, 5 broad and $\frac{3}{4}$ thick, having a bed cut in it large enough to receive a carbon plate, 5 inches long, 2 wide and $\frac{1}{4}$ thick; through the centre of this board a metallic binding screw is introduced and brought into connection with the carbon, and to this binding screw is attached a piece of insulated wire, which may, as required, be attached to either conducting wire from the battery. The current is said to be centripetal when the surface board is connected with the negative, and centrifugal when connected with the positive pole. The average duration of the bath is about twenty minutes, though the time may range from ten minutes to an hour and a-half. The temperature of the bath may range from 85° to 100° or 105° Fahr. Certain chemicals may be introduced into the bath, which will, under certain conditions, enhance its effect. Iron (tart. of iron and ammonia) is useful in anæmia, chlorosis, etc. Iodine, either as tincture, or in the form of iodide of potassium, is very useful in the absorption of plastic exudations, articular deposits following rheumatism and gout, also in the elimination of lead, in cases of lead poisoning: in these cases about an ounce of iodide of potassium is added to each bath. Extract

of malt alone, or in conjunction with iron, has been found very useful in cases of mal-nutrition and debility. If we wish to obtain counter-irritant effects, mustard or common salt may be added. To render the bath alkaline in some cases of skin diseases add bi-carbonate of potash, or soda; starch is sometimes a useful adjuvant to the potash or soda.

The general therapeutic effects and uses as described at length by Dr. Schweig may be summarized:

1st. Its value as a diagnostic.—The current makes itself more decidedly, and often even painfully felt, in any part where a morbid condition exists, whether this be of an inflammatory, neuralgic, rheumatic, traumatic, congestive or other nature. It may be compared to tenderness on pressure. In anæsthesia the current makes itself conspicuous by the absence of its normal effects.

2nd. It is an excellent counter-irritant. The amount of counter-irritation can be regulated to a nicety by the intensity of the current. After a bath the back and legs are seen to be quite red. Concentrated local counter-irritation can be obtained by the use of the surface board.

3rd. As a general invigorant and tonic it can have few, if any, superiors. In cases of debility, mal-nutrition, want of energy, etc., the tonic effects are striking and brilliant.

4th. It has great powers as a hypnotic and general sedative. The greater the degree of restlessness, irritability or wakefulness, the more strikingly does the soothing and hypnotic influence of the baths become apparent.

5th. Improved nutrition, as manifested by rapid increase of weight, is a reliable and constant effect of the bath.

Among the diseases that seem to be specially amenable to this form of treatment may be mentioned:

1st. Rheumatism, sub-acute and chronic, with their sequelæ.

2nd. Chorea, or St. Vitus' dance.

3rd. Hysterical affections.

4th. Nervous exhaustion.

5th. Insomnia (sleeplessness).

- 6th. Anæmia (the cause of numerous morbid conditions).
- 7th. Paralysis (here very specially the beneficial effects of the bath have been amply proved.)
- 8th. Many forms of neuralgia.
- 9th. Articular effusions.
- 10th. Impotency.
- 11th. Dyspepsia, constipation and chronic diarrhœa.
- 12th. Some forms of metallic poisonings, as lead, mercurial, etc.
- 13th. Very useful in convalescence from acute diseases, chronic headaches, hay fever, uterine and special female complaints.

I will now conclude by mentioning a few cases selected at random from my case book.

I. Hay Fever.—This most trying complaint may be very greatly alleviated, if not altogether cured, by a proper administration of electricity alone; or, when indicated, assisted by medication.

Mr. H. entirely escaped his usual attack during the past summer, having at my advice undergone a systematic course (chiefly of general faradization) during the summer months. He assured me that, in addition, he felt much stronger and more able for his work. The last summer is the first for many years he passed in Montreal, having been usually obliged to spend June, July and part of August either at the sea-side, or at one of the mountain retreats frequented by victims of hay fever. I may mention here that I was successful during the past season in cutting short, or modifying in several instances severe attacks of this disorder. Some were treated by central galvanization (as recommended by Dr. Beard in his book on hay fever), others by the electric bath.

II. Aphonia.—Miss G. B., aged 18, came to me in April, 1876. Had been in somewhat a debilitated condition for some time, menses irregular, bowels very constipated. About three months previous to her visit to me she had caught a severe cold, which resulted in complete loss of

voice, so much so that she carried a slate and pencil as a means of communication. A laryngoscopic examination revealed paralysis of the vocal cords; on attempting to phonate, the right remained completely motionless, and the left did not quite approach the median line. I applied one pole of a faradic battery to the "pomum Adami" by means of Mackenzie's necklet, and the other directly to the vocal cords by means of Mackenzie's laryngeal electrode. The effect was instantaneous, her voice being completely restored. I then ordered her a tonic containing iron and nuxvomica, and she shortly regained good health.

Miss S., 23 years of age, a saleswoman in a shop, consulted me in June, 1877, for a functional aphonia following a severe cold. In this case there was a good deal of congestion of the cords. I applied electricity, as in the former case. After the first application her voice was somewhat restored. I touched the cords with a solution of chloride of zinc 3ss. to the ʒi; and gave her a benzoin inhalation. The following day the congestion was a good deal less. I again applied the electricity, and repeated the zinc solution. In less than a week her voice was quite restored, and has remained strong up to the present time. I may mention that in the former case the young lady had been very actively treated by means of applications of nitrate of silver, mustard plasters, iodine inhalations and purgatives *ad libitum*.

III. Chorea.—In 1874 I saw a case treated by means of the electric bath. The child, about 10 years of age, was brought to Mr. Adolphus, proprietor of the Queen's hotel electric baths, and so bad was the case that a bag had to be made into which the child was placed, and the bag tied round the neck so that it could not hurt itself against the sides of the bath. The improvement was rapid, the contortions being much less even after the second bath. In less than a month the child was perfectly cured.

IV. Lumbago.—Col. B. consulted me in June, 1875, for lumbago. He had been suffering nearly a week, and was scarcely able to cross the room, so great was the pain. I

applied the galvanic current for about 15 minutes over the lower part of the spine and thighs. This application gave great relief. I repeated the galvanism next day. He was now so much improved that he could walk with a stick; three more applications so completely cured him that he was able to take his daily ride and walk without any pain or inconvenience.

Mr. D. had been troubled for some time with aching pains in his back. He had tried the usual remedies without much, if any, benefit. He was recommended to try the electric bath, and for that purpose came to me in September, 1877. He took in all four baths; marked improvement followed the first bath, and he declared himself to be perfectly free from pain after the third. He has had no return up to the present time.

V. *Deficiency of Secretion of Milk*.—Mrs. H. consulted me in February, 1877, about the entire absence of milk in her right breast. This was the third time she had lost the milk in this breast, the result of previous abscesses; three applications of the faradic current resulted in as full a supply of milk as in the other. I may mention here that the galvanic current is very efficacious in curing sore nipples.

VI. *Paralysis*.—1. James L. fell, September 8th, from a window in St. Catherine street, some 20 feet from the ground, striking the left side of his head. The child was taken up insensible; pupils dilated. Ordered grs. x of calomel, followed by an injection, and hot cloths to its head. As the child seemed in great pain, and kept crying continually, I gave it small doses of tr. of opium. On the ninth child was quieter; ordered another injection and ice cloths to the head. On the twelfth the child became sensible. It was now noticed that he was unable to speak, and that its leg was paralysed. There was a good deal of anæsthesia in the paralysed limb; no response to the faradic current. *Treatment*.—Daily applications of both galvanic and faradic currents. Sept. 21st; able to stand; 22nd, speech returned; 23rd, walked alone, 26th, able to run a little; dismissed, cured, the first week in October.

2. Frank M., 14 months old; strong, well-nourished child, sent me by Dr. Kennedy. First seen, September 24th, '77, left leg was paralysed, muscles flabby, limb was always cold, and smaller than the right. Previous history: Sept. 14th, child woke up, crying, after its morning nap; was very feverish and vomited several times. The mother gave it a dose of oil; towards evening child seemed better. The next day the mother noticed the child's leg was paralysed. Supposed cause of the paralysis was cold, as the child was sitting on damp grass the day before its illness. There was no response to the faradic current. *Treatment*.—Galvanic current, positive pole to the lower part of the spine, negative applied to the entire length of the limb. Early in September the muscles began to answer to the faradic current; a fair return of sensation; temperature of the limb better. Continued galvanism, and, in addition, gave faradic baths. In October the leg had increased in size, and was easily kept warm. The child now began to move the leg, and was able to creep and stand in November. December, leg same size as right; temperature good; able to walk short distances; dismissed, cured, towards end of December.

3. Miss M., aged 24. She had been in the habit of taking epsom salts daily for more than a year. Caught a severe cold towards the end of December, '77, which resulted in spinal congestion, for which she was attended by Dr. Roddick, who sent her to me, Dec. 13th, 1877, for electrical treatment. She was then complaining of numbness of both legs, (the numbness extended as high up as the lumbar vertebrae,) weariness on the slightest exertion, and considerable difficulty in locomotion; appetite bad, bowels constipated, feverishness and restlessness at night. Treatment, electric baths, 15 to 20 minutes with the galvanic current, followed by 10 minutes with the faradic. She took in all six baths, one every other day, when she returned, cured, to her occupation as saleswoman in a shop.

VII. *Post Partum Hæmorrhage*.—1. Dr. Geo. A. Baynes has furnished me with the following case: Called to see

Mrs. D., a thin delicate woman. She had been in labor for some 19 hours. On examination found the os uteri fully dilated, head presenting, the anterior diameter somewhat shorter than normal. Her pains were very feeble and far between, seemed very low. I gave her two or three doses of fluid extract of ergot which produced little or no effect. I then applied the forceps and delivered the child; the placenta came away. Shortly after severe hæmorrhage set in, the uterus failed to contract under the application of cold, ice, etc. Mrs. D. fainted. I had sent for my battery, which now arrived. I gave the nurse one pole to apply over the abdomen, and taking the other in my hand passed it into the uterus, which immediately answered to the stimulus and contracted firmly. I withdrew my hand and applied both poles for a few minutes to the abdomen over the uterus. There was no recurrence of the hæmorrhage, and the uterus remained firmly contracted.

2. Dr. Perrigo sent me the notes of the following case: Was called by Madame Fuhrer to see Mrs. S. The labor had been an ordinary one; however, soon after the removal of the placenta, flooding set in. Ergot had been given and ice had been introduced into the uterus, but without the effect of producing permanent contractions. On my arrival I found the patient much exhausted; ex-sanguine, and the uterus was relaxed. I immediately applied the faradic current to the abdomen over the uterus, this was followed by a temporary contraction. The uterus, however, again relaxed. I now introduced one pole into the uterus itself and applied the other to the abdomen, this resulted in the uterus becoming firmly and permanently contracted. The woman made a good recovery.

VIII. Atony of Uterus.—Dr. Geo. A. Baynes gave me the following notes of one of his cases:

Mrs. D. M., aged 34; small and rather delicate woman; former confinements tedious, owing to the want of regular and strong pains. When called in on the present occasion I found the os uteri fully dilated, and the head well ad-

vanced; nothing seemed to be wanting but a few good expulsive pains. She had been in labor for many hours. Her pains were feeble, recurring at long intervals. I determined to try faradization, and applied a medium current for about two or three minutes. I then waited for four or five minutes, and again applied the faradic current. The uterus began to respond to the stimulus, and acted strongly and regularly; a few minutes afterwards the child was born. The woman made a good recovery.

In many uterine irregularities and troubles, electricity has proved to have been of great value.

I have had very favorable results from its use in neuralgic dysmenorrhœa, amenorrhœa, etc.

IX. Toothache.—I have several times afforded great relief by placing a needle connected with the negative pole of a galvanic battery in the hole of the carious tooth, the positive being placed on the cheek, and passing a gentle current through for a minute or two. Two or three applications, allowing a few minutes rest between each application, will, as a rule, cure the toothache. The patient will not be likely to suffer from a return for some weeks, or months.

X. Debility.—Mrs. F. L., married, suffering from obstinate constipation and severe leucorrhœa, had, from over-nursing, fallen into a very low, depressed and nervous state. She told me she felt thoroughly unfit, mentally as well as physically, either to read, write or attend to the ordinary duties of the house. She had gone through the usual routine of tonics before I saw her. I began treatment with the electric baths, in April, 1877. After the third bath she began to improve, and in June, 1877, was dismissed cured. She was then able to take long walks, two or three miles; had quite regained her mental vigor.

J. B., clerk, aged 45, consulted me in July, 1877, for debility and cough. Previous history, had been some years in India, where he had suffered from various malarial fevers, etc. During the winter of 1877, he had a severe attack of typhoid fever. He was hardly convalescent when he was

again laid up with an attack of pneumonia. On his recovery he went away for change of air, and to a certain extent regained his former strength. The office work, however, soon began to tell, and when he came to me in July, he was very thin, had considerable stoop, a trying cough, moist rales which were distinctly heard while talking to him. His appetite was bad, and on his return from office used to throw himself down on the sofa and lie there till he went to bed. I gave him electric baths, one every other day at first, then one twice a week, and lastly, one a week. He took, in all, about 18 baths. His appetite began to improve after the first bath. After he had taken three, he told me his cough was nearly well, and his energy for work was much better. His improvement was very rapid. After he had finished his course of baths he said he was stronger and in better health than he had been since his Indian service.

I could go on multiplying case upon case, were there necessity, where I have used electricity with benefit. I have not touched upon the use of electricity in cancer, nor its electrolytic action in tumours, nor galvanic cautery, upon each of which a long paper might readily be written.

Finally, any one who knows anything of the action and effects of electric baths on the following conditions will at once acknowledge their great use, viz., astheniæ, debilitated conditions generally, convalescence from acute disease, many kinds of chronic headaches, various conditions of marasmus and mal-nutrition, etc.

In conclusion, I would recommend any who may wish to try electro-therapeutics to be careful in the selection of their batteries. I have tried a great many, English, French and American, and must in fairness say that those manufactured by the Galvano-Faradic Manufacturing Co. of New York have given me the greatest satisfaction. They are perfectly reliable if properly looked after, convenient in size, reasonable in price, easily managed, simple in construction and handsome in appearance.